

Claims

- 5 1. Process for heat recovery in the production of 1,2-dichloroethane from chlorine and ethene by direct chlorination, characterised in that the vaporous 1,2-dichloroethane obtained from direct chlorination reactor (3) is compressed and then fed to heat exchangers for heat recovery.
- 10 2. Process according to claim 1, characterised in that the compressed 1,2-dichloroethane is fed to evaporator (6) of a light ends dehydration column (7) and/or to evaporator (8) of a heavy ends column (9) and/or to evaporator (10) of vacuum column (11) and/or to chlorine heater (16) upstream of direct
- 15 chlorination reactor (3).
3. Process according to claim 1 or 2, characterised in that the dehydration column (7) for purifying 1,2-
- 20 dichloroethane, which is operated at a head pressure of 1.0 to 1.6 bars abs., is heated by providing a heat exchange between the bottom product and the compressed vapours from the direct chlorination reactor at a temperature difference of 8 and 25°C, the bottom temperature being maintained in the range of 80 to 105°C by an
- 25 adequate bottom discharge stream.

4. Process according to any of the preceding claims,
characterised in that the heavy ends column (9) for purifying 1,2-
dichloroethane, which is operated at a head pressure of 0.7 to 1,4 bars
abs., is heated by providing a heat exchange between the bottom
product and the compressed vapours from the dehydration column (7)
at a temperature difference of 8 and 25°C, the bottom temperature
being maintained in the range of 84 to 105°C by an adequate bottom
discharge stream.

5. Process according to any of the preceding claims,
characterised in that the vacuum column (11) used for purifying the
bottom discharge stream from the heavy ends column (9) and operated
at a head pressure of 0.2 to 0.3 bars abs. is heated by providing a heat
exchange between the bottom product and the compressed vapours
from the direct chlorination reactor at a temperature difference of 8 and
25°C, the bottom temperature being maintained in the range of 80 to
90 °C by an adequate bottom discharge stream.

6. Process according to one of the preceding claims,
characterised in that liquid chlorine used for direct chlorination is
evaporated and superheated by heat exchange with the compressed
vapours from the direct chlorination reactor or by heat exchange with
circulated liquid 1,2-dichloroethane from the direct chlorination reactor.

7. Facility for running the process according to any of the preceding
claims,
characterised in that a turbo-compressor (4) is used to compress the
vapourous 1,2-dichloroethane withdrawn from the direct chlorination
reactor (3).

8. Facility according to claim 7,
characterised in that turbo-compressor (4) is equipped with a tandem
type shaft seal and in that a device is provided for supplying said shaft
seal with nitrogen as barrier gas.

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9. Facility according to claim 7 or 8,
characterised in that a speed controller is provided to adjust the
delivery rate of the turbo-compressor to the discharge rate of the direct
chlorination reactor.

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